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10/798,309	03/12/2004	Nobuhiro Ishizaka	00862.023514.	5783

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EXAMINER	
DICKERSON, CHAD S	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/798,309	ISHIZAKA ET AL.	
	Examiner	Art Unit	
	CHAD DICKERSON	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 October 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 11-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 11-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1 and 11-14 have been considered but are moot in view of the new ground(s) of rejection. The amendment to the claims has necessitated a new ground(s) of rejection. However, the references of Watanabe '289, Iwasaki '403 and Clark '856 are still being applied to the claims. The Examiner has added the reference of Omura to meet the limitations regarding the color change code. For example, in the newly applied reference, ¶ [13]-[15] discloses the color change point information, which is considered as the color change code[1]. The system uses this information to not only communicate the storage location of image data to the system, but it also contains the bitmap data that is processed and output by the printer. The image data storage location can also change and be adjusted when the image data is processed. This adjustment is then communicated to the system through the Results_Locations information that discloses the new location of the current information that the color change point information represents[2]. This reads on the last claimed feature regarding changing storage location in the second part of the memory, which is based on the color change code.

Regarding the assertions about the first and second regions, the Examiner still maintains this rejection. The Iwasaki reference states that the print buffers stores column data at identical print positions in the main scanning direction and this is demonstrated through lining up figures 7 and 13. The system prints images in the main

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[1] See Omura '032 at ¶ [13]-[15]
[2] Id. at ¶ [18]-[20].

scanning direction[3]. Also, the Iwasaki reference discloses the printer buffers within RAM[4]. The buffers are simply addresses in RAM that are partitioned for different colors. This discloses a first region (e.g. RAM) that is divided into first regions that are in identical print positions as printing in the main scanning direction and into second regions that separate the addresses in terms of color.

Therefore, in view of the above explanations, the Examiner believes that the claim language is disclosed by the applied references.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe '289 (USP 5689289) in view of Iwasaki '403 (USP 6328403), Clark '856 (USP 7265856) and Samata '957 (JP Pub 1997-068957 (Pub Date: 3/11/1997)).

Re claim 1: Watanabe '289 discloses a printing apparatus that prints by scanning a print head with regard to a printing medium (i.e. the system discloses the printing head recording information onto a medium in a scanning direction; see col. 3, ll. 9-14),

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[3] See Iwasaki '403 at col. 4, ll. 5-18.
[4] Id. at col. 7, ll. 27-65.

a print buffer for being divided into a plurality of first regions corresponding with a scan direction of the print head (i.e. the print buffer is used to store column data that has been recently converted to vertical data and this information is then printed as it is stored in the print buffer. The print buffer is stored in RAM (312) of the recorder (311). Here, the print buffer stores the vertical information of a plurality of column amounts for printing and another column amount stored for the next scan. The data storage capacity of the printer buffers correspond to the area to be recorded by a single main scan of the recording head. With the printer buffers being stored in RAM (312) and the RAM, considered as the printer buffer, being divided into two buffers, the Examiner believes that the storage area of the RAM is divided into a plurality of first regions; see figs. 3-6 and 8; col. 3, line 47 – col. 8, line 8 and col. 11, ll. 1-46),

input means for sequentially inputting plurality of block data corresponding to a first region (i.e. the system contains a 4-line buffer, considered as an input means, that can store four lines of converted image data that has been decoded by a programmed process of the CPU (111). The decoded data represents data that is dot image data, considered as a raster, and this data is stored in the 4-line buffer. There are one-line representations that are decoded into a dot image, or a raster, stored in the 4-line buffer and the 4-line buffer is able to store 4 lines, two after resolution conversion and two lines before resolution conversion. The 4-line buffer is able to then contain a plurality of rasters when storing these lines. While the receiver buffer (202) receives data of one line from the 4-line buffer, the receiver buffer receives data sequentially from the 4-line buffer if the receiver buffer is empty. Therefore, the sequential transfer of data from the

4-line buffer to the receiver buffer is performed. Also, since the image data of one line of an overall image is stored in the 4-line buffer, the divided regions of an overall image are used to be transferred to the receiver buffer. Lastly, with the data being expanded into dot image data and then, the dot image data being encoded again while being stored in the image buffer (104), this performs the feature of having dot image data, or a plurality of raster data, being encoded, or compressed; see col. 3, ln 47 – col. 5, ln 64),

acquisition means for reading block data from the input means and for acquiring data from the block data by decompressing the compressed data (i.e. the raster buffer, which can be considered as apart of the acquisition means or printer unit (200, fig. 3), receives, or acquires, lines of memory with a certain bit value (8x3640 bits) from the centronics sender. Specifically mentioned in column 4, lines 6-65, the raster buffer is used to decode, or decompress, data stored on the receiver buffer (202). Also, the programmed processing of the CPU1 (111, fig. 3) decodes data that is stored in the image buffer. The data is analyzed in order to determine if text or image data is being processed and this data is forwarded to the text buffer or raster buffer. In addition, CPU1 (111) can also be considered as the acquisition means since this controller acquires or reads data from the 4-line buffer and decompresses this information into a bitmap; see figs. 3-6 and 8; col. 3, line 47 – col. 8, line 8);

storage control means for assigning block data to the first regions of the print buffer and for storing the data acquired by the acquisition means in second regions (i.e. the print buffer stores the vertical, or column data, transferred from the horizontal-to-

vertical converter. The print buffer has 8 lines that represent 8 separate lines or regions of the print data that is stored in the print buffer. If print data is being output from the print buffer 1 (205), the system then transfers column data information to be printed to the memory spaces within print buffer 2 (206); see figs. 3-6 and 8; col. 3, line 47 – col. 8, line 8).

However, the reference of Watanabe '289 fails to teach *the preamble limitation of said print head having ink of a plurality of colors*, a print buffer for dividing storage area into a plurality of first regions in corresponding with a scan direction of the print head, each first region being divided into a plurality of second regions in correspondence with color components, wherein the block data contains first color component data corresponding to the first color and/or second color component data corresponding to the second color, for determining the code and storage control means for assigning block data to a first region of the print buffer and for storing the data acquired by the acquisition means in second regions of the first region on the basis of the code determined by said acquisition means.

However, this is well known in the art as evidenced by Iwasaki '403. Similar to the primary reference, the Iwasaki reference contains print buffers that are used to store print data (same field of endeavor).

Iwasaki '403 discloses *the preamble limitation of said print head having ink of a plurality of colors* (i.e. since this is a preamble limitation that is not recited in the body of the claim nor does it give any life or meaning to the overall claim, it is not given any patentable weight. However, in the interest of compact prosecution, the Examiner

would like to mention that the Iwasaki '403 reference contains the above feature by containing nozzles within print head cartridges as shown in figure 26. In figure 3A and 3B, a nozzle array is illustrated and figure 26 has several print heads that are of a different color next to one another; see col. 16, ll. 14-36),

a print buffer for being divided into a plurality of first regions corresponding with a scan direction of the print head (i.e. the invention discloses buffer areas within the RAM that store information particular to each color represented in an image. Figures 4, 7 and 13 show rasters stored within the buffers pertaining to the particular colors and these rasters are at identical print positions in the main scanning direction as 1-byte data. When viewing figures 7 and 13, the image data is printed at a position on the paper that mirrors the raster position stored within the print buffers; see col. 7, 56-col. 8, ll. 16),

each first region being divided into a plurality of second regions corresponding with color (i.e. like the Watanabe ‘289 reference, the Iwasaki ‘403 reference discloses a printing device receiving image information to process and print (same field of endeavor). However, shown in figures 7, 11 and 13, the RAM stores buffers associated with a particular color. When viewing figure 7, the layout of the print nozzles within a print head of a color ink-jet printer is displayed. In addition, figure 13 represents the first region stored in the print buffer that represents the first block of data. The 16 columns are divided into 4 colors and the first three bytes are black, the next three are cyan, etc. These represent a memory with a first region of 16 bytes or columns to by divided into separate color regions within a buffer; see col. 7, line 13 – col. 9, line 45),

wherein the block data contains data corresponding to color (i.e. the system of Iwasaki discloses print codes that are considered analogous to color component data since the print codes can represent multiple colors that are to be used in the page output; see col. 7, line 13 – col. 11, line 56),

storage control means for assigning block data to the first regions of the print buffer and for storing the data acquired by the acquisition means in second regions of the first regions and changing the second regions to storing on the basis of the color code (i.e. the system of Iwasaki discloses storing data in a storage means based on the color code analyzed and determined to be a specific type of information. The overall print buffer is made up of the four different color buffers. The sixteen bytes in figure 13 represent the scan direction of the print head as seen in figure 7. The memory shown in figure 13 shows different columns stored in the overall buffer in a manner that when printed mimics the print positions in the main scanning direction. With the first region being the overall printing direction of the bytes within the print buffer, the data from the rendered printed codes stored in their respective portions within the buffer are considered as data stored within the second regions of the first region; see col. 6, ll. 16-38 and col. 7, line 13 – col. 9, line 46).

Therefore, in view of Iwasaki '403, it would have been obvious to one of ordinary skill at the time the invention was made to have the features of a print buffer for dividing storage area into a plurality of first regions in corresponding with a scan direction of the print head, each first region being divided into a plurality of second regions corresponding with color, wherein the block data contains data corresponding to color

and storage control means for assigning block data to the first regions of the print buffer and for storing the data acquired by the acquisition means in second regions of the first regions and changing the second regions to storing on the basis of the color code, incorporated in the device of Watanabe ‘289, in order to store color information within a print buffer in RAM and having the storage position be identical to the print positions of the image data in the main scanning direction (as stated in Iwasaki '961 col. 8, lines 1-9).

However, the combination of Watanabe '289 in view of Iwasaki ‘403 fails to teach wherein the data contains compressed data.

However, this is well known in the art as evidenced by Clark '856. The Clark ‘856 reference discloses outputting stored information within a printer, which is similar to the primary reference (same field of endeavor).

Clark '856 discloses wherein the data contains compressed data (i.e. the system contains a header of the compressed size of the color data that is sent to the printing device. Each of the color components that are compressed is also expanded before being printed; see col. 2, ll. 29-60).

Therefore, in view of Clark '856, it would have been obvious to one of ordinary skill at the time the invention was made to have the features of wherein the data contains compressed data, incorporated in the device of Watanabe ‘289, as modified by

the features of Iwasaki '403, in order to minimize the amount of printer memory required for executing print data (as stated in Clark '856 col. 2, lines 16-20).

Lastly, however, the above combination fails to specifically teach a color change code representing a color changing of data, and changing the second regions to storing on the basis of the color change code.

However, this is well known in the art as evidenced by Omura '032.

Omura '032 discloses a color change code representing a color changing of data (i.e. the system discloses color change point information that represents the point where the image data is changed in color; see ¶ [13]-[15]); and

> [0013]The secondary memory 3 which has the color change point information storing part 3b which stores the bit image storage 3a and the color change point data mentioned later which hold the binary picture data used as a processing object as image-operations equipment is shown in drawing 1, having the data conversion means 1, the data conversion means 1 incorporates binary picture data from the bit image storage 3a, and is this ******** -- it changes into the color change point data in which the position of a color change point [in / for binary picture data / each of that raster line] is shown. For example, as shown in drawing 2 (a), 32 dots wide and 32-dot-long secondary image data are held at the bit image part storage 3a, and this secondary image data is changed into the color change point data in which the position of the color change point in every raster line is shown. the color on a raster line -- the black from white -- or while being specified that the position which changes from black to white is a change point as shown in drawing 2 (b), it is specified that the position at the tail end of a raster line is a change point, and the position of this change point is shown by color change point data. It is specified in the head position of each raster line with a white block being located as the thing.

> [0014]The color change point data changed from binary picture data by the data conversion means 1 is stored in the color change point information storing part 3b. The color change point data stored in the color change point information storing part 3b is read by the image processing means 2, and the image processing means 2 performs image-operations processing of rotation, variable power (expansion, reduction), etc. to the read color change point data.

> [0015]Once the color change point data in which image-operations processing was performed is stored in the color change point information storing part 3b, it is given to the output-data-form

conversion method 4. The output-data-form conversion method 4 changes the color change point data in which image-operations processing was performed into the data of the data format which the output device 5 requires, and outputs it to the output device 5.

changing the second regions to storing on the basis of the color change code (i.e. the system discloses changing the different areas in memory to store based on operations that occur to the image data. The image processing operations are found within the color change point data. The second part (3b) of the memory that stores the bitmap information along with the color change information can have reduction or expansion operations performed on the bitmap data. When the system performs either operation, the image data is stored based on the color change point information that describes the location of the specific point of image data within the raster after image processing. This features changes the location within the second part (3b) to store image data information based on the Results_Locations information of the color change point data; ¶ [18]-[20]).

[0018]The color change point data in which the position of the color change point in each raster line of binary picture data is shown in reduction operation of this embodiment, It is expressed with Locations [Height] using the parameter counter for managing the parameter Height for managing the number of a raster line, and the number of the positions of a color change point, and [counter], This Locations [Height] and [counter] show the dot position of what position is a position of a color change point from that head in a Height position raster line. For example, as shown in drawing 5 (a), the position of six color change points exists in a Height position raster line, Locations [Height] and [counter =0] show that the 7th dot position is a position of the color change point to black [white] from the head in a Height position raster line, Locations [Height] and [counter =1] show that the 9th dot position is a position of the color change point from black to white from the head in a Height position raster line. Since it is specified in the head position of each raster line with a white block being located as the thing as mentioned above, if Couter is even numbers, Locations [Height] and [counter] will show the head position of a white block,

but. When a black block is temporarily located in the head position of a raster line, it is Locations [Height] and [0]. It is referred to as =0. Thus, binary picture data is changed into the color change point data denoted by Locations [Height] and [counter], and this color change point data is stored in the change-point-information storage 3b in the data format of Locations [Height] and [counter].

[0019]On the other hand, the position of the color change point in the data, i.e., the raster line after reduction operation processing, after the reduction operation processing to the color change point data shown by Locations [Height] and [counter], It is expressed with Result_Locations [Height] and [counter]. Result_Locations [Height] and [counter] show the dot position of what position is a position of a color change point from the head in a Height position raster line like Locations [Height] and [counter]. Thus, it is expressed with Result_Locations [Height] and [counter] by the color change point data after reduction operation processing, and this color change point data, It is stored in the change-point-information storage 3b in the data format of Result_Locations [Height] and [counter].

[0020]In this reduction operation, the reducing process to the direction of a raster line and the reducing process to the direction which intersects perpendicularly with a raster line are performed. When 1/3 time as many reduction is performed in the reducing process to the direction of a raster line to the color change point data shown by Locations [Height] and [counter], for example in a Height position raster line, The value of Locations [Height] and [counter] is divided by 3, the value is rounded off, and it stores in Result_Locations [Height] and [counter]. At the example shown in this drawing 5 (a), it is Locations [Height] and [0]. It is Result_Locations [Height] and [0] to =7. =2 is obtained, It is [as opposed to / Locations [Height] and [1] / =9] Result_Locations [Height] and [1]. =3 is obtained.

Therefore, in view of Omura ‘032, it would have been obvious to one of ordinary skill at the time the invention was made to have the feature of a color change code representing a color changing of data, and changing the second regions to storing on the basis of the color change code, incorporated in the device of Watanabe ‘289, as modified by the features of Iwasaki '403 and Clark ‘856, in order to have image data that conveys color change point information and modify the method of storing information based on the color change point information to improve the efficiency of utilizing the printer’s storage capacity (as stated in Omura ‘032 ¶ [06]-[08]).

Re Claim 11: The teachings of Watanabe '289 in view of Iwasaki '403, Clark ‘856 and Omura ‘032 are disclosed above.

Watanabe ‘289 discloses the apparatus according to claim 1, wherein the data acquired by the acquisition means is column data (i.e. the print buffer, which is apart of the acquisition means receives vertical or column data; see fig. 3, col. 4, ll. 6-65).

Re Claim 12: The teachings of Watanabe '289 in view of Iwasaki '403, Clark ‘856 and Omura ‘032 are disclosed above.

Watanabe ‘289 discloses the apparatus according to claim 1, wherein said acquisition means has decompression means for decompressing the color component data into raster data (i.e. the system discloses CPU1 (111, fig. 3) contains the feature of programming that allows the controller to decompress black data, which is considered as color component data, and the decoding of this information results in a dot image or raster to be output by the printer unit; see col. 4, ll. 6-65 and col. 5, ll. 65-col. 7, ll. 12).

Re Claim 13: The teachings of Watanabe '289 in view of Iwasaki '403, Clark ‘856 and Omura ‘032 are disclosed above.

Watanabe ‘289 discloses the apparatus according to claim 12, wherein said acquisition means has conversion means for converting the raster data into the column data (i.e. the acquisition or printer unit contains elements that convert the raster data into vertical information through horizontal to vertical conversion circuit (204); see fig. 3, col. 4, ll. 6-18).

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe ‘289, as modified by the features of Iwasaki '403, Clark ‘856 and Omura ‘032, as applied to claim 1 above, and further in view of Casey ‘499 (USP 6097499).

Re claim 14: The teachings of Watanabe '289 in view of Iwasaki '403, Clark ‘856 and Omura ‘032 are disclosed above.

However, Watanabe '289 in view of Iwasaki '403, Clark ‘856 and Omura ‘032 fails to specifically teach the preamble limitation of a print buffer having a column data amount stored that is smaller than the data that may be printed through one main scan of a print head.

However, this is well known in the art as evidenced by Casey '499. Casey '499 discloses the preamble limitation of a print buffer having a column data amount stored that is smaller than the data that may be printed through one main scan of a print head (i.e. The Watanabe reference involves having the printing device being connected to an external processing apparatus (see figure 8) and the Casey reference also involves an

external device (i.e. a computer) that sends information to a printing device for printing (same field of endeavor). Casey '499 performs the feature of having a data amount that is stored in the buffer and this amount is smaller than the data amount required for a printing of one line in the main scanning direction; see column 5, lines 34-63).

Therefore, in view of Casey '499, it would have been obvious to one of ordinary skill at the time the invention was made to have the preamble feature of a column amount of the column data stored in the print buffer being smaller than a column amount of column data to be printed by one scanning, incorporated in the device of Watanabe, as modified by the features of Iwasaki '403, Clark ‘856 and Omura ‘032, in order to have a minimal buffer size in the printing system, while still being able to complete a printing pass during the print process (as stated in Casey '499 col. 4,lines 5-15).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Nohata ‘656 (USP 6111656) discloses an image communication apparatus that is able to acquire image data information and transfers the information within the

equipment through several buffers and units for conversion before printing the image data.

7. Yamada (USP 6339480) discloses a printer driver for a color printer and the system comprises a raster to column conversion, a compression and a decompression of the raster data.

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHAD DICKERSON whose telephone number is (571)270-1351. The examiner can normally be reached on 9:30-6:00pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler Haskins can be reached on (571) 272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CHAD DICKERSON/
Examiner of Art Unit 2625

/Twyler L. Haskins/
Supervisory Patent Examiner, Art Unit 2625